

2870

DECLASSIFICATION RECOMMENDED

*James E. Keyes* EAST  
Name (ADC) - Organization

*3-28-96*  
Date

X  
XX

ORIGINAL SIGNED BY  
R. C. ARNETT

647

#52

356/1500  
21/2100

S. R. SAPIRIE  
MANAGER  
OAK RIDGE OPERATIONS

S. R. Sapirie

DECEMBER 21, 1965

US AEC  
GERMANTOWN, MD.

FOR: D. E. GEORGE, DIRECTOR  
DIVISION OF NUCLEAR MATERIALS  
MANAGEMENT

*Original from 1st  
Source - Sapirie  
1-11-66*

- INFO/P.A. MORRIS, DIV. OF OPERATIONAL SAFETY, US AEC, GERMANTOWN, MD.
- ① F. P. BARANOWSKI, DIV. OF PRODUCTION, US AEC, GERMANTOWN, MD.
- ✓ G. F. QUINN, ASST. GM FOR PLANS & PRODUCTION, US AEC, GERMANTOWN, MD.
- / C. A. NELSON, DIV. OF INSPECTION, US AEC, GERMANTOWN, MD.
- ✓ J. A. WATERS, JR., DIV. OF SECURITY, US AEC, GERMANTOWN, MD.

SUBJECT: INITIAL REPORT OF APPARENT EQUIPMENT MALFUNCTION CAUSING  
ACCIDENTAL LOSS OF ENRICHED URANIUM CONTAINED IN CONDENSATE IN SALVAGE  
RECOVERY AT Y-12 PLANT. PARA

THE Y-12 PLANT HAS REPORTED THE LOSS OF APPROXIMATELY 1500 GRAMS OF  
URANIUM IN URANIUM BEARING SOLUTIONS FROM THE DAFFODIL SALVAGE  
RECOVERY AREA. THE 24-HOUR COMPOSITE SAMPLE OF CONDENSATE FOR  
DECEMBER 2, 1965, FROM THE GENERAL SALVAGE EVAPORATORS, ANALYZED  
IN THE PROCESS LABORATORY ON THE FIRST SHIFT ON DECEMBER 3, 1965,  
SHOWED A LEVEL OF APPROXIMATELY 200 PPM URANIUM, AND THE EVAPORATORS  
WERE SHUT DOWN. THE NEXT SHIFT STARTED THE EVAPORATORS AGAIN AND TOOK  
FREQUENT SAMPLES TO ESTABLISH LEVEL OF URANIUM IN THE CONDENSATE. THESE  
SAMPLES SHOWED THAT THE EVAPORATORS AT THIS TIME WERE AGAIN RUNNING  
NORMALLY. PARA

*Math 8.3*

~~CONFIDENTIAL~~

~~RESTRICTED DATA~~

W. B. Kenna, ag	DECLASSIFICATION AUTHORIZED	"This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited." GROUP 1: Excluded from Automatic Downgrading and Declassification.
Room 3-4604	GABRIEL MARCIANTE, ORG CLASSIFICATION OFFICER	
SURNAME	NAME (ADC) - ORGANIZATION	
DATE	3/29/96	

ChemRisk Document No. 2870

~~CONFIDENTIAL~~

D. E. GEORGE, US AEC, HQ.

- 2 -

DECEMBER 21, 1965

OTHER SAMPLES OF THE DECEMBER 2nd, 24-HOUR COMPOSITE WERE ANALYZED IN THE PLANT LABORATORIES ON DECEMBER 15th, AND THESE RESULTS SHOWED APPROXIMATELY 700 PPM URANIUM. THE VARIANCE BETWEEN THE PROCESS LABORATORY AND PLANT LABORATORY RESULTS IS NOT UNEXPECTED SINCE THE PROCESS LABORATORY USES A FLUORIMETRIC PROCEDURE, AND THE PLANT LABORATORY USES A COLORIMETRIC METHOD AT THAT LEVEL OF URANIUM. PARA

AN INVESTIGATION WAS STARTED IMMEDIATELY BY Y-12 TO DETERMINE THE CAUSE OF THE HIGH URANIUM CONTENT OF THE DECEMBER 2nd, 24-HOUR COMPOSITE SAMPLE. RECONSTRUCTION OF EVENTS INDICATE THAT IT IS POSSIBLE THAT THE FAILURE OF THE FEED VALVE TO COMPLETELY CLOSE AT SHIFT CHANGE ALLOWED THE FEED SOLUTION TO BACK UP IN THE EQUIPMENT, AND ON RE-STARTING THE EVAPORATORS, CONCENTRATE SOLUTION RAN OVER INTO THE CONDENSATE HANDLING EQUIPMENT. A REVIEW OF PROCESS EQUIPMENT INDICATED THAT THE CONSTANT HEAD OVERFLOW LINE WAS SO INTER-CONNECTED TO OTHER PROCESS EQUIPMENT THAT, UNDER THE CIRCUMSTANCES INDICATED ABOVE, THE INCIDENT COULD HAPPEN. PARA THE PIPING CHANGES NECESSARY TO ASSURE THAT THIS SITUATION COULD NOT RECUR WERE MADE IMMEDIATELY. ALSO A CHANGE WAS MADE IN OPERATING PROCEDURES WHEREBY THE MAXIMUM SPECIFIC GRAVITY OF THE PRODUCT WAS REDUCED TO ASSURE THAT NO BOIL-OVER OCCURRED IN THE

EVAPORATORS. PARA

OFFICE ▶

SURNAME ▶

DATE ▶

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

D. E. GEORGE, US AEC, HQ.

- 3 -

DECEMBER 21, 1965

THE ABOVE INCIDENT IS CONSIDERED A TEMPORARY MALFUNCTION OF EQUIPMENT SINCE NO DIFFICULTY IN MAINTAINING NOMINAL OPERATING CONDITIONS RELATIVE TO URANIUM CONTENT IN THE CONDENSATE HAD BEEN ENCOUNTERED PRIOR TO THE INCIDENT NOR HAS ANY DIFFICULTY BEEN NOTED SINCE. THE CHANGES MADE BY Y-12 ARE ADEQUATE TO PREVENT A RECURRENCE. PARA Y-12 IS PREPARING A REPORT OF THE INCIDENT. THE REPORT WILL BE FORWARDED TO YOU WHEN RECEIVED. PARA THE LOCAL OFFICE OF THE FBI HAS BEEN INFORMED OF THIS INCIDENT FOR INFORMATION PURPOSES. NO INVESTIGATION HAS BEEN REQUESTED. OPA:WBK

CC: R. C. ARMSTRONG  
F. P. CALLAGHAN

BC: Roy Williams  
Y-12 12/27/65

~~CONFIDENTIAL~~

OFFICE ▶	Nuclear Materials Control Br.	NMC Branch	Security	Prod. Div.	Operations Manager
SURNAME ▶	Kenna:ag	Marchall	Quincy	Reid	
DATE ▶	12/21/65	12/21/65	12/21/65	12/21/65	12/21/65

~~CONFIDENTIAL~~

DECLASSIFICATION RECOMMENDED

Name E. J. Keyser EAST  
(ADC) - Organization

Date 3-28-96

~~RESTRICTED DATA~~

This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited.

DECLASSIFICATION AUTHORIZED  
GABRIEL MARCIANTE, ORG CLASSIFICATION OFFICER  
NAME (ADD) - ORGANIZATION  
DATE 3/29/96

GROUP 1

Excluded from automatic  
downgrading and  
declassification

~~CONFIDENTIAL~~

Inc #52

VV BWA006

PP RUEPXG

ZNY CCCCC ZFD RUCBWO 006

PP RUEPXG

DE RUCBWO 647 3561500

ZNY CCCCC

P 212100Z

FM S R SAPIRIE USAEC OAKRIDGE TENN

TO D E GEORGE USAEC GERMANTOWN MD

INFO/INFO COPIES OMITTED

AEC

BT

~~CONFIDENTIAL~~/RD GROUP ONE. SUBJECT: INITIAL REPORT OF APPARENT EQUIPMENT MALFUNCTION CAUSING ACCIDENTAL LOSS OF ENRICHED URANIUM CONTAINED IN CONDENSATE IN SALVAGE RECOVERY AT Y-12 PLANT. THE Y-12 PLANT HAS REPORTED THE LOSS OF APPROXIMATELY 1500 GRAMS OF URANIUM IN URANIUM BEARING SOLUTIONS FROM THE DAFFODAL SALVAGE RECOVERY AREA. THE 24-HOUR COMPOSITE SAMPLE OF CONDENSATE FOR DECEMBER 2, 1965, FROM THE GENERAL SALVAGE EVAPORATORS, ANALYZED IN THE PROCESS LABORATORY ON THE FIRST SHIFT ON DECEMBER 3, 1965, SHOWED A LEVEL OF APPROXIMATELY 200 PPM URANIUM, AND THE EVAPORATORS WERE SHUT DOWN. THE NEXT SHIFT STARTED THE EVAPORATORS AGAIN AND TOOK

PAGE 2 RUCBWO 647 ~~CONFIDENTIAL~~/RD

FREQUENT SAMPLES TO ESTABLISH LEVEL OF URANIUM IN THE CONDENSATE. THESE SAMPLES SHOWED THAT THE EVAPORATORS AT THIS TIME WERE AGAIN

OTHER SAMPLES OF THE DECEMBER 2ND, 24-HOUR COMPOSITE WERE ANALYZED IN THE PLANT LABORATORIES ON DECEMBER 15TH, AND THESE RESULTS SHOWED APPROXIMATELY 700 PPM URANIUM. THE VARIANCE BETWEEN THE PROCESS LABORATORY AND PLANT LABORATORY RESULTS IS NOT UNEXPECTED SINCE THE PROCESS LABORATORY USES A FLUORIMETRIC PROCEDURE, AND THE PLANT LABORATORY USES A COLORIMETRIC METHOD AT THAT LEVEL OF URANIUM.

AN INVESTIGATION WAS STARTED IMMEDIATELY BY Y-12 TO DETERMINE THE CAUSE OF THE HIGH URANIUM CONTENT OF THE DECEMBER 2ND, 24-HOUR COMPOSITE SAMPLE. RECONSTRUCTION OF EVENTS INDICATE THAT IT IS POSSIBLE THAT THE FAILURE OF THE FEED VALVE TO COMPLETELY CLOSE AT SHIFT CHANGE ALLOWED THE FEED SOLUTION TO BACK UP IN THE EQUIPMENT, AND ON RE-STARTING THE EVAPORATORS, CONCENTRATE SOLUTION RAN OVER INTO THE CONDENSATE HANDLING EQUIPMENT. A REVIEW OF PROCESS EQUIPMENT INDICATED THAT THE CONSTANT HEAD OVERFLOW LINE WAS SO INTER-CONNECTED TO OTHER PROCESS EQUIPMENT THAT, UNDER THE CIRCUMSTANCES INDICATED ABOVE, THE INCIDENT COULD HAPPEN.

THE PIPING CHANGES NECESSARY TO ASSURE THAT THIS SITUATION COULD

PAGE 3 RUCBWO 647 C O N F I D E N T I A L/RD

NOT RECUR WERE MADE IMMEDIATELY. ALSO A CHANGE WAS MADE IN OPERATING PROCEDURES WHEREBY THE MAXIMUM SPECIFIC GRAVITY OF THE PRODUCT WAS REDUCED TO ASSURE THAT NO BOIL-OVER OCCURRED IN THE EVAPORATORS. THE ABOVE INCIDENT IS CONSIDERED A TEMPORARY MALFUNCTION OF EQUIPMENT SINCE NO DIFFICULTY IN MAINTAINING NOMINAL OPERATING CONDITIONS RELATIVE TO URANIUM CONTENT IN THE CONDENSATE HAD BEEN ENCOUNTERED PRIOR TO THE INCIDENT NOR HAS ANY DIFFICULTY BEEN NOTED SINCE THE CHANGES MADE BY Y-12 ARE ADEQUATE TO PREVENT A RECURRENCE.

Y-12 IS PREPARING A REPORT OF THE INCIDENT. THE REPORT WILL BE FORWARDED TO YOU WHEN RECEIVED.

THE LOCAL OFFICE OF THE FBI HAS BEEN INFORMED OF THIS INCIDENT

FOR INFORMATION PURPOSES. NO INVESTIGATION HAS BEEN REQUESTED RE

OPA:WBK C-647

BT

NNNN

~~CONFIDENTIAL~~